REMARKS

Claims 1-25 were pending. Claims 1-3, 5, 7-9, 11, 13-15, 17, 20-24 have been amended and claims 26-38 have been added by this amendment. The element of time sequenced points is not new matter as it is described in the original specification on page 7, lines 14-16. The element that the output of the correlator (peak detector) starts a counter that provides clocking symbols for processing subsequent OFDM symbols is not new matter as it is disclosed in the original specification on page 8, lines 20-23. The element that synchronization is performed by cross correlating is performed with the first long symbol is not new matter as it is disclosed on page 6, lines 19-21. The element that at least 32 points are used is not new matter as it is disclosed on page 6, lines 21-23 of the original specification. The subject matter of claims 29-34 is not new matter as it is disclosed in Figure 2 of the original specification

I. Rejections under 35 U.S.C. § 103(a)

Claims 1-6 and 13-25 were rejected under 35 U.S.C. § 103(a) as being obvious in view of the combination of U.S. Patent Application Publication No. 2002/0065047 to Moose (hereinafter Moose) and U.S. Patent No. 6,111,919 to Yonge, III (hereinafter Yonge). Claims 7-12 were rejected under 35 U.S.C. § 103(a) as being obvious in view of the combination of Moose and Yonge with U.S. Patent No. 5,852,630 to Langberg et al. (hereinafter Langberg).

Independent claims 1, 7, 13, 20, as now amended recite a method or system for synchronizing an OFDM signal. The OFDM signal is received and includes a plurality of long and short synchronization symbols, wherein at least one of the plurality of long and short synchronization symbols includes a predetermined plurality of time sequenced points. The time sequenced points in the at least one of the plurality of long and short synchronization symbols are correlated against a corresponding predetermined plurality of points in a reference symbol stored at the receiver. A correlation peak is obtained between the at least one of the plurality of long and short synchronization symbols and the reference symbol, the peak occurs at the time when the receiver acquires symbol synchronization between the predetermined plurality of time sequenced points in the at least one of the plurality of long and short synchronization symbols and the plurality of points in the reference signal stored at the receiver.

By contrast, Moose uses a correlator that delays the input signal, and then correlates the delayed input with a direct input that is aggregated by an integrator (see Fig. 4; and para. [0028]). Thus, Moose does not use a plurality of points in a reference signal stored at the receiver. The correlator reaches a peak when the last symbol of the preamble sequence enters the correlator's direct path. The present invention does not correlate the input signal with a delayed input signal, but with a predetermined plurality of points in a reference symbol stored at the receiver. Furthermore, the correlator in Moose does not reach a peak until the last symbol of the preamble sequence enters the correlator's direct path, whereas an advantage of the present invention is that it obtains a correlation peak when the receiver acquires symbol synchronization between the predetermined plurality of time sequenced points in the at least one of the plurality of long and short synchronization symbols and the plurality of points in the reference signal stored at the receiver. Thus, the present invention can obtain symbol synchronization much faster by matching known points in a synchronization symbol and does not necessarily have to process the entire preamble.

The aforementioned deficiencies in Moose are not remedied by any teaching in Yonge. Moreover, Yonge is non-analogous as Yonge actually works in the frequency domain (col. 5, lines 2-5; col. 8 lines 37-40), and therefore there would also be no motivation to combine the references. Yonge performs synchronization in the frequency domain, using known reference phases (see 156 in Figure 14; col. 8, lines 48-50), not reference points and calculates a corresponding time shift ΔTx. The present invention does not calculate a corresponding time shift.

Furthermore, the aforementioned deficiencies in Moose and Yonge are not remedied by any teaching of Langberg. The Examiner relies on Langberg to use software to implement the method of Moose and Yonge. Therefore, for the reasons just set forth, neither Moose, Yonge, nor Langberg, taken alone or in combination, teach suggest or show the present invention as now claimed.

In addition to the reasons set forth above, claims 2, 14 and 21 were rejected in ¶4 (2) of the Office Action. However, the discrete time sample values that are described in paragraphs [0024] and [0025] are stored at transmitter, not at the receiver, and are thus not used for synchronizing a received signal. Thus, in addition to the reasons set forth above, claims 2, 14

and 21 are not obvious based on the cited prior art. Furthermore, these claims now teach that the plurality of time sequenced points are in a long symbol.

In addition to the reasons set forth above, claims 5, 17 and 24 recite that the correlating includes multiplying each point of the at least one of the plurality of long and short synchronization symbols by the corresponding predetermined points in the reference symbol to obtain a respective number of multiplication products. By contrast, Moose multiplies the symbol with a delayed version of itself. Yonge actually subtracts the phase differences (see 162 in Figure 15). Claim 27 further recites that the synchronization symbols is the first long synchronization symbol.

In addition to the reasons set forth above, claims 26, 31 and 34 recite a counter that is started when the correlation peak occurs. The counter provides clocking for a subsequent OFDM symbol. Claims 29 and 34 further recite a vectorizer, such as a serial to parallel shifter, coupled to the input for receiving the OFDM symbol. The vectorizer receiving a clocking signal from the counter. In addition, claims 33, 34 recite at least one memory coupled to the vectorizer, the memory also receiving clocking signals from the counter. Claim 38 recites that the clocking signals are employed for shifting symbols from the vectorizer to the at least one memory. Nothing in Moose or Yonge teaches, suggests or motivates these elements.

II. Conclusion

For the reasons set forth above, the cited prior art, alone or in combination, does not teach, suggest nor show the claims as now amended. Therefore, applicant requests withdrawal of the claim rejections. Applicant is including fees for the additional claims added by this amendment. If there are any outstanding fees necessitated by the foregoing communication, please charge such fees to our Deposit Account No. 50-0902, referencing our Docket No. 72225-02773.

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Respectfully submitted,

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